

**ISOLATION AND CHARACTERIZATION OF AEROBIC
AND ANAEROBIC BACTERIA FROM SATAY AND
OTAK-OTAK IN KUALA PILAH**

FATIN NADHIRA BINTI NOORHIZAM

**Final Year Project Submitted in
Partial Fulfillment of the Requirements for the
Bachelor of Science (Hons.) Biology
Faculty of Applied Science
Universiti Teknologi MARA**

JANUARY 2017

This Final Year Project Report entitled **“Isolation and Characterization of Aerobic and Anaerobic Bacteria from Satay and Otak-Otak in Kuala Pilah”** was submitted by Fatin Nadhira Binti Noorhizam, in partial fulfilment of the requirements for the Degree of Bachelor of Science (Hons.) Biology, in the Faculty of Applied Sciences, and was approved by

Mohd Syahril Bin Mohd Zan
Supervisor
Faculty of Applied Sciences
UiTM Cawangan Negeri Sembilan
Kampus Kuala Pilah
72000 Kuala Pilah
Negeri Sembilan.

Ilyanie Binti Hj. Yaacob
Project Coordinator
Faculty of Applied Sciences
UiTM Cawangan Negeri Sembilan
Kampus Kuala Pilah
72000 Kuala Pilah
Negeri Sembilan.

Dr. Nor'aishah Binti Abu Shah
Head of School of Biology
Faculty of Applied Sciences
UiTM Cawangan Negeri Sembilan
Kampus Kuala Pilah
72000 Kuala Pilah
Negeri Sembilan.

Date: _____

TABLE OF CONTENTS

	PAGE
ACKNOWLEDGEMENTS	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	vi
LIST OF FIGURES	vii
LIST OF ABBREVIATIONS	viii
ABSTRACT	ix
ABSTRAK	x
CHAPTER 1: INTRODUCTION	
1.1 Background Study	1
1.2 Problem Statement	2
1.3 Significance of the Study	4
1.4 Objectives of the Study	5
CHAPTER 2: LITERATURE REVIEW	
2.1 Kuala Pilah	6
2.2 Grilled Street Food	6
2.3 History of Satay	8
2.4 History of Otak-otak	9
2.5 Bacterial Identification	10
2.5.1 Gram stain	11
2.5.2 Catalase test	11
2.5.3 Oxidase test	12
CHAPTER 3: METHODOLOGY	
3.1 Materials	13
3.1.1 Raw materials	13
3.1.2 Chemicals	13
3.1.3 Apparatus	13
3.2 Methods	14
3.2.1 Sample collection	14
3.2.2 Preparation of serial dilution	14
3.2.3 Isolation of bacteria	15
3.2.4 Microbiological analysis	15
3.2.4.1 Morphologies of bacteria	16
3.2.4.2 Gram stain	16
3.2.4.3 Catalase test	17
3.2.4.4 Oxidase test	17

CHAPTER 4: RESULTS AND DISCUSSION	18
CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS	25
CITED REFERENCES	26
APPENDICES	28
CURRICULUM VITAE	34

ABSTRACT

ISOLATION AND CHARACTERIZATION OF AEROBIC AND ANAEROBIC BACTERIA FROM SATAY AND OTAK-OTAK IN KUALA PILAH

Satay and Otak-otak were very famous street food that can easily be found at many places. Without correct supervision, the food can easily contaminated by pathogenic bacteria. The aim of this study was to isolate the bacteria from satay and Otak-otak in Kuala Pilah. It is also to identify and characterize the aerobic and anaerobic bacteria that grow in the satay and Otak-otak. In this study, the results shown that all bacteria isolates were Gram-Negative bacteria after performed the Gram Stain. Two biochemical tests which catalase and oxidase test were performed and the results were catalase-positive and oxidase-negative for all bacteria isolates. Therefore, it can be concluded that the bacteria isolates were facultative anaerobes. The bacteria isolates also can be group under family *Enterobacteriaceae*. It was recommended to use selective and differential media to get the specific species of pathogenic bacteria and perform more biochemical tests